



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/944,969      | 08/30/2001  | Kay-Yut Chen         | 10004567-1          | 2217             |

7590 02/23/2007  
HEWLETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER

ROBERTSON, DAVID

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
|----------|--------------|

3623

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 02/23/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

**Application No.**

09/944,969

**Applicant(s)**

CHEN, KAY-YUT

**Examiner**

Dave Robertson

**Art Unit**

3623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 12/1/2006.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. Claims 1-21 are pending. Claims 1, 5, 7, 8, 10, 13, and 14 are amended, however, the amendments to the claims do not constitute new scope.

### ***Response to Amendment***

2. The declaration filed on 12/01/2006 under 37 CFR 1.131 has been considered and is effective to overcome the Adler (US Pat. Publication 20020169658 with priority to March 8, 2001) for at least the claims indicated by Applicant as supported by Exhibits A-E and stipulations in the affidavit. In reference to the Supplemental Declaration Under 37 C.F.R 1.131, Applicant offers Exhibits A-E and asserts that the subject matter described and claimed in the instant application was implemented in software prior to March 8, 2001. However, certain claims of the invention appear unsupported by the Supplemental and information and Applicant attests only to support for claims 1, 2, 4-7, 9-11, 13-15, and 17-21 of the present application (see Supplemental Item 15). Claims 3, 8, 12, and 16 directed to compilation of scripts before execution and to automated agents or players appear to have no support. Because these claims are directed to substantial features and because Applicant excludes in the affidavit and further that Exhibits A-E an assertion of support for these features, these claims cannot be afforded the earlier date.
3. Applicant responds to a Rule 105 Request for Information made in the prior office action with partial submission of the requested documents and a statement that the inventor did not in fact author certain documents indicated. The intent of the prior office

Art Unit: 3623

action was to obtain references published by the assignee in Hewlett Packard Technical Bulletins and was mistakenly qualified as *authored* by the inventor. Nonetheless, these documents have been acquired online and Examiner appreciates the additional references authored by the inventor voluntarily identified and submitted by Applicant in response to this request, and therefore finds the prior request for information sufficiently responded to.

4. New questions raised by submitted and obtained documents give rise to additional inquiries on a potential prior public use and possible derivation of the invention from jointly developed software similar in scope to the claims of the present invention. It is fair given the indications in these documents as well as to Applicant's in an opportunity to respond to such evidence, to follow up with a second request for information. This inquiry is attached in a Supplemental Requirement for Information.

#### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claim 20 is rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. Methods for “executing variations of the codified script to identify business rules and environment definitions that result in a pre-determined economic state” as recited in claim 20 (d), critical or essential to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976).

Determining the economic state *from* business rules and environment definitions is amply described in the disclosure; however, the method by which one would employ the invention to determine the rules and environment definitions that *result* in a pre-determined economic state are not disclosed. It is not clear nor discussed how the MUMS program would be executed (essentially in reverse) to achieve this aim. Lacking such disclosure, a practitioner in the art might resort to trial-and-error, adjusting rules and environment with some notion of moving the result toward a pre-determined state. Still, such experimentation would be undue and beyond enablement for the claim as recited.

Amendment, cancellation or clarification is requested.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mehta et al (US 6,931,365) and further in view of Honovar et al (US 6,405,173).

Claim 1

Mehta teaches defining a plurality of players including an associated set of rules defining a possible decision space (see Background of Invention; "agents programmed with rules of engagement" for a decision space of "what if" scenarios of business and economic decisions); an information set (see Content and Industry databases reference in Figure 2); an outcome function and a payoff function (column 7 from line 35, describing knowledge functions for agent-player goals including costs, profits, etc) which determine the economic impact of the business policies defined by the rules. However, Mehta does not expressly teach rules for players defined by a decision-making process tree; nor does Mehta expressly teach executing the simulation using a scripting language.

It was old and well known in the art of computer programming, specifically logic programming for automated decision-making making systems, to use decision-trees to define rules, the familiar if-then-else programming construct being a form of a decision-tree definition of a rule. Honavar, for example, in the art of business decision-making

Art Unit: 3623

simulation teaches player (client) rules defined by decision trees (see Figures 6 and 10 and related discussion) defining client strategies for the business simulation. Mehta teaches customized rules for players (see column 4, from line 55), leaving the specific definition method for those rules to practitioners of the art of logic programming. It would have been obvious to one of ordinary skill in the art at the time of the invention to define rules for players using such means such as the decision-tree, readily programmable with a familiar programming construct as this would have provided a flexible and readily programmable means for defining simple or arbitrarily complex rules for the defined players of the economic simulation.

It was also old and well known in the art of computer programming, specifically in the art of programming for automated economic games simulation, to use a scripting language to define and execute the simulation. Applicant admits as much in Kay-yut Chen (inventor) and Ren Wu, "Computer Games and Economics Experiments," HP Laboratories, November, 2002, in referring to scripting languages having been used by George (1990) and Donninger (1996), and scripting languages found in commercial computer games "to allow customization of computer behavior." See page 3, left, 4<sup>th</sup> paragraph. That the key innovation of MUMS (as proclaimed therein) may be the scripting language, notwithstanding, it is not any particular feature or innovation in the scripting language itself which is claimed by the present application. Rather, what is claimed is the general notion of a scripting language being used to drive an economic simulation, which is admittedly well known prior art at the time of invention. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to

Art Unit: 3623

implement Mehta as a scripted simulation as this would have provided a well known means to change the “operating functionality at run-time”, thereby realizing the “highly re-configurable” software environment (column 7 from line 55) envisioned by Mehta.

Claims 2 and 3

Mehta teaches a simulation environment for humans and/or automated agents and, as with the present disclosure, does not restrict its use to exclusively human players.

Claim 4

Mehta teaches a highly customizable system with custom data, custom behaviors, custom scenarios, custom rules, and custom content (column 7 from line 15) providing for modifying the associated set of rules for one or more players and repeating the simulation.

Claim 5

Mehta teaches providing calibration data for defined players based on actual (empirical) data (column 4 from 38; implying sales data from “marketing management functions).

Claim 6

Mehta teaches a plurality of scenarios (see Figure 2 “Scenario Database” and related discussion).

Claim 7 and 8

In view of the discussion of scripts above for claim 1, Mehta teaches re-configurable interface classes “Databots” that are “dynamically assembled simulations



Art Unit: 3623

based on participant's profiles or on demand", thereby suggesting "on-the-fly execution" of compiled scripts. Interface classes as implemented by Mehta provide re-configurable interface classes according to participant profiles, with the implementations of the classes themselves compiled before execution (see "Software Interface Classes", column 7 from line 55). Thus, Mehta inherently teaches both scripts compiled on the fly (programming within the interface class implementations) and scripts compiled in their entirety before execution.

#### Claim 9

Mehta expressly teaches rules associated with players defining at least one business policy (see column 3 from line 48).

Claims 10-17 recite automated apparatus for carrying out the methods of claims 1-9 and are thus similarly rejected for reasons given above. Mehta teaches the methods described above as a computer program implemented in software modules (see column 7 from line 55).

#### Claims 18 and 19

Mehta teaches or suggests the elements of claim 1 recited in claim 18 as described above for claim 1, and further Mehta teaches a method of evaluating the actions of a human player within a decision environment with other human and/or automated players, inherently determining the players behavioral outcome (the player's actions) resulting from execution of the simulation by scripting language, the outcome measured by costs, profits, etc, i.e. economic states (column 7 from line 35).

#### Claim 21

Art Unit: 3623

Mehta teaches providing calibration data for defined players based on historical data from actual data and previous experience (column 4 from 38; implying sales data from "marketing management functions).

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fischbacker (z-Tree) teaches an economic games customizable simulation tool with scripting language.

Suggess teaches early recognition in the art for simulating business behavior to assess economic impact and behavioral outcomes of players under different business policies.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dave Robertson whose telephone number is 571-272-8220. The examiner can normally be reached on 8:15am to 5:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tariq Hafiz can be reached on 571-272-6729. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

dcr

A handwritten signature in black ink, appearing to be 'dcr' or similar, written over the printed 'dcr' text.

***Requirement for Information***

1. 37 CFR 1.105 reads as follows:

In the course of examining or treating a matter in a pending or abandoned application filed under 35 U.S.C. 111 or 371 (including a reissue application), in a patent, or in a reexamination proceeding, the examiner or other Office employee may require the submission, from individuals identified under § 1.56(c), or any assignee, of such information as may be reasonably necessary to properly examine or treat the matter, including but not limited to identification of relevant commercial databases, searches conducted, information used to draft application, information used in invention process, identification of improvements, in use, on sale or offered or demonstration information, technical information known to applicant concerning related art. Requirement may be made for factual information and responses to interrogatories or stipulations. Any reply to a requirement for information pursuant to this section that states either that the information required to be submitted is unknown to or is not readily available to the party or parties from which it was requested may be accepted as a complete reply, however, failure to reply to a requirement for information under this section may result in abandonment of the application.

2. Applicant and the assignee of this application are required under 37 CFR 1.105 to provide the following information that the examiner has determined is reasonably necessary to the examination of this application:

- a. In "Minimum Advertised-Price Policy Rules and Retailer Behavior: An Experiment by Hewlett Packard", Interfaces, Sept-Oct. 2002, pp. 62-73, an inventor-authored paper, a potential public use of the present invention system is described where software resembling the present invention "MUMS" was presented, in 1999, to Stanford University graduate students participating in an economic experiment to study retail pricing policies (see page 65 section "Experimental Procedure"). Because games or experiments are common to the field of experimental economics, it is not clear from this reference whether participants were participating in an *experiment* using MUMS as a tool in the

study, or if the use was experimentation of MUMS itself, not having been reduced to practice as of the study, and therefore an *experimental use*. If the former, the use of and disclosure of the software and/or methods to graduate students, who may or may not have been under confidential disclosure restrictions, might constitute a public use prior to the critical date of invention. Stipulation or evidence indicating Applicant's understanding, documentation, and/or propriety of such potential public use is requested.

b. In "Computer Games and Economics Experiment", HP Laboratories, November, 2002, an inventor-authored paper, the authors make reference to collaboration with Caltech University in the development of "the early core concepts" of MUMS. Further reference to Caltech involvement and possible conception and/or disclosure is given by curriculum vitae titled "Portfolio" found at <http://www.ugcs.caltech.edu/~bruce/portfolio/index.html> [downloaded 02/08/2007].

The document alleges contribution by a C++ programmer to the work of "Charlie Plott, an economics professor at Caltech", specifically naming MUMS as the programming product having a "specialized scripting language..for implementing economics experiments in a rapid-prototyping manner", a capability suggesting at least the scripting capability of the present invention. The document acknowledges HP support and supposes a successor system having the same name. Attempts to obtain additional information from published documents regarding the provenance of MUMS and its capabilities at the time of development purported in "Portfolio" have been unsuccessful. Still, references to

Art Unit: 3623

Caltech involvement and the potential for the capabilities of "MUMS" to read on claims of the present invention gives rise to this inquiry. Stipulation and evidence indicating Applicant's understanding, documentation, and/or propriety of the reported prior conception, development, and use is requested.

3. This requirement is an attachment of the enclosed Office action. A complete reply to the enclosed Office action must include a complete reply to this requirement. The time period for reply to this requirement coincides with the time period for reply to the enclosed Office action.